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THE
ONTARIO WATER RESOURCES
COMMISSION

WATER POLLUTION SURVEY

TOWNSHIP OF RED LAKE

DISTRICT OF KENORA

1964

TD
380
.R43
1964
MOE

TOWNSHIP OF RED LAKE 1964
DISTRICT OF KENORA

STANDARDS DEVELOPMENT BRANCH OMOE
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**TD
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1964**

Report on a water pollution
survey of the township of Red
Lake, district of Kenora.

80756

R E P O R T

on

WATER POLLUTION SURVEY

of the

TOWNSHIP OF RED LAKE

District of Kenora

September 16, 1964

Division of Sanitary Engineering

REPORT

ONTARIO WATER RESOURCES COMMISSION

A water pollution survey was conducted in the Township of Red Lake on September 16, 1964.

Mr.K.C. McLeod, Reeve, and Mr.J.J. McLean, Clerk-Treasurer, provided information pertinent to the survey. Mr.E.G. Smith, Road Superintendent, assisted in the sampling programme.

GENERAL

The 1963 assessed population of the Township of Red Lake is listed as 2,666, (1964 Municipal Directory). The concentration of population is located on a point of land extending to the north between Howey and Skookum bays. These bays are part of the Red Lake watershed and are the receiving waters for general drainage from the adjacent land areas.

Private septic tank systems and privies are used generally for the treatment and disposal of sanitary sewage. Five private modified sewage treatment systems are provided for the treatment of sanitary wastes from five commercial operations in the business section of town. The installation and operation of all such units are under the supervision of the Northwestern Health Unit.

It was learned that due to adverse soil, and rock outcrop conditions in parts of the built-up areas, the installation of adequate field tile disposal units is almost impossible. Similar

conditions hamper the satisfactory operation of some units which have been installed. It is also known that in other areas, and particularly in the business area, adequate space is not available for the installation of field tile disposal beds. Such conditions have resulted in the discharge of inadequately treated wastes into surface-water drains and into Howey and Skookum bays. The domestic water supply for almost the entire population is obtained from Howey Bay, consequently the discharge of polluting materials into the bay could result in a serious health hazard. It may also be noted that under Section 27 of the Ontario Water Resources Commission Act, every municipality or person that discharges or deposits any material into a lake or watercourse, that may impair the quality, is guilty of an offence.

WATER QUALITY ANALYSES

Water samples were collected, where possible, from the flow at the outfall of each of the known surface-water drains. Samples were also collected from the effluent of each of the five private sewage treatment units.

The sanitary chemical and bacteriological analyses of such samples are listed in tables 1 and 2 respectively.

The locations of sampling points are indicated on the accompanying map.

INTERPRETATION OF ANALYSES

For convenience in the interpretation of laboratory analyses, the Ontario Water Resources Commission objectives for water quality

in surface-water drains, and for effluents from sewage treatment operations are listed:

5-Day BOD (Biochemical Oxygen Demand)

- not greater than 15 parts per million (ppm)

Suspended Solids

- not greater than 15 parts per million (ppm)

Coliform Count (Most Probable Number - M.P.N.)

- not greater than 2,400 per 100 cubic
centimeters (c.c.)

Anionic Detergent

The presence of anionic detergent indicates
pollution from domestic sources.

SIGNIFICANCE OF LABORATORY ANALYSES

The sanitary chemical and bacteriological analyses of almost all samples collected from the surface-water drains, and private sewage treatment plants, show results in excess of the water quality objectives. The excessively high coliform counts and the concentration of anionic detergent indicate that domestic sewage is probably the major source of pollution.

The extremely high BOD of samples collected from the effluents of the five private treatment operations indicate that satisfactory treatment is not being provided in these plants. The excessively high coliform counts in the effluents from three of the operations indicate that at the time of the survey, adequate chlorination was not being provided. The lack of efficient chlorination practices at these sewage treatment operations greatly increases the health hazard in domestic water supplies obtained from Howey Bay.

CONCLUSIONS

The surface-water drains throughout the built-up area of the municipality are, in general, contaminated. This condition may be attributed to the illegal practice of permitting the discharge of inadequately treated wastes, and domestic sewage, into the drains.

The facilities, provided for the treatment of sanitary wastes from the Bartlett and Proudfoot, Harry Hughes, Red Lake Inn, and Lakeview Bakery and Restaurant buildings, were not providing satisfactory treatment at the time of this survey (Table 2).

The discharge from the surface-water drains, and the effluents from the aforementioned private sewage treatment units is therefore considered as a major source of pollution in Howey Bay and Red Lake.

The findings of this survey emphasize the need for a municipal sewerage works programme.

SUMMARY

A water pollution survey was conducted in the built-up area of the Township of Red Lake on September 16, 1964.

Varying degrees of pollution were present in all surface-water drains investigated.

The laboratory analyses of the effluents from four of the five private sewage treatment plants indicated that the treatment being provided by these units was not satisfactory.

RECOMMENDATIONS

1. The Township of Red Lake should institute a sewerage

works programme for the urban section of the township. Such a programme should provide for the installation of a sanitary sewer system and an adequate method for sewage treatment.

2. In the event that the institution of such a programme is not feasible, it will then be necessary that the municipality take measures to ensure that all private drains, which discharge inadequately treated wastes to any surface-water drain, watercourse, or body of water, are immediately located and severed. This action will require each property owner to provide an adequate means of treatment for his own wastes.

3. The operation and maintenance of the private sewage treatment units which are being utilized should be reviewed. Measures should be adopted to ensure that the accumulated solids are removed from each tank on a routine basis, and that all effluents are adequately chlorinated at all times prior to discharge into Howey Bay.

All of which is respectfully submitted,

District Engineer

C.E. McIntyre
C.E. McIntyre

Approved by

K.H. Sharpe
K.H. Sharpe, Director.

TABLE I

TOWNSHIP OF RED LAKE - WATER POLLUTION SURVEY

<u>Sample No.</u>	<u>Location of Sampling Point</u>	<u>SURFACE-WATER DRAINS</u>				<u>Anionic Detergents as ABS (ppm)</u>	<u>Coliform Count per 100 c.c. M.P.N.</u>
		<u>5-Day BOD (ppm)</u>	<u>Total (ppm)</u>	<u>SOLIDS Susp. (ppm)</u>	<u>Diss. (ppm)</u>		
1.D	Drain-north side of Hwy.No. 105 at outfall to main drainage ditch.	5.8	682	15	667	10.0	240,000+
2.D	Main drainage ditch on east side and parallel to Howey St.at outfall to Howey Bay.	5.4	332	4	328	0.7	240,000+
3.D	Drain from Howey Bay Rd.at rear of Howey Bay Motel at outfall to Howey Bay.	12.0	704	6	698	0.3	240,000+
4.D	Drain from Hammel Rd.south of Post Office at outfall to main drainage ditch.	7.6	368	12	356	1.8	240,000+
5.D	Drain on south side of Kenora Rd.at out- fall to main drainage ditch.	4.2	630	2	628	6.5	240,000+

TABLE I CONT'D

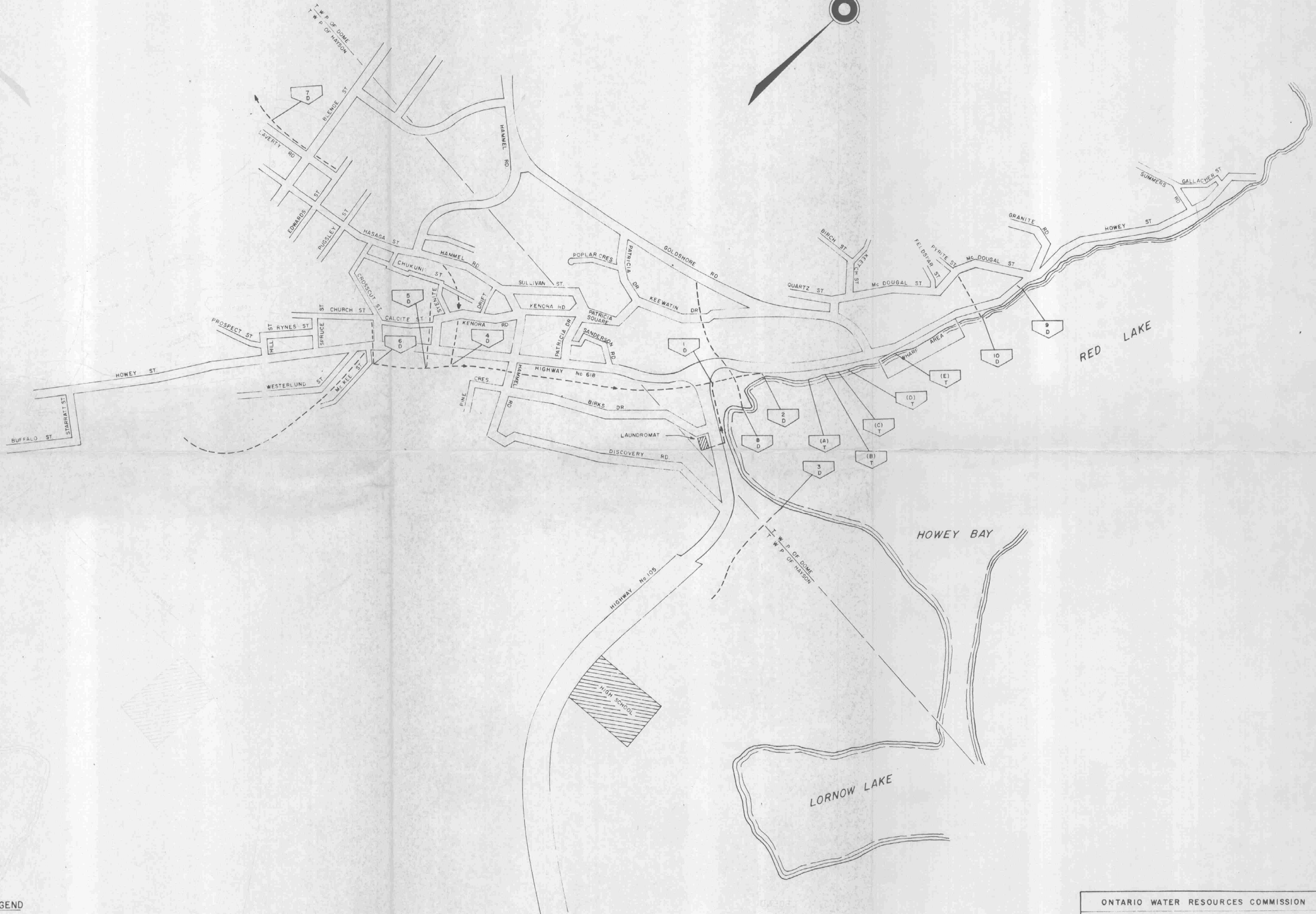
<u>Sample No.</u>	<u>Location of Sampling Point</u>	<u>5-Day BOD (ppm)</u>	<u>Total (ppm)</u>	<u>Solids</u>		<u>Anionic Detergents as ABS (ppm)</u>	<u>Coliform Count per 100 c.c. M.P.N.</u>
				<u>Susp.</u>	<u>Diss.</u>		
6.D	Drain on south side of Crosscut St.at outfall to main drainage ditch.	4.2	270	16	252	0.1	2,400
7.D	Drain along Lavery Rd.at outfall to Skookum Bay.	3.0	300	20	280	0.4	240,000+
8.D	Drain from Goldshore Rd. at outfall to Howey Bay.	4.8	454	10	444	1.0	240,000+
9.D	Drain on Howey St.at McDougal St.at outfall to Howey Bay.	4.0	988	612	376	0.2	2,400
10.D	Drain on Howey St.at side of C.Snow property at outfall to Howey Bay.	1.3	222	8	214	0.1	240,000

TABLE 2

TOWNSHIP OF RED LAKE - WATER POLLUTION SURVEY

PRIVATE SEWAGE TREATMENT PLANTS

No. of Outfall	Name of Treatment Unit	5-Day BOD (ppm)	Total (ppm)	SOLIDS	Diss. (ppm)	Anionic Detergents as ABS (ppm)	Coliform Count per 100 c.c. M.P.N.
				Susp. (ppm)			
(a) T	Bartlett and Proudfoot Bldgs.	225	548	56	492	8.5	240,000+
(b) T	Harry Hughes Bldg.	76	242	24	218	4.0	240,000+
(c) T	Red Lake Inn.	92	304	14	290	0.8	0
(d) T	Lakeview Bakery and Restaurant.	140	314	16	298	2.8	240,000
(e) T	Ontario Government Bldg.	10	168	24	144	-	0



LEGEND

----- DITCH OR DRAIN

 -DITCH OR SURFACE WATER DRAIN OUTFALL

 -SEWAGE TREATMENT PLANT OUTFALL

ONTARIO WATER RESOURCES COMMISSION

**TOWNSHIP OF RED LAKE
WATER POLLUTION SURVEY**

SCALE: 500 250 0 500 FEET

DRAWN BY: L.L.B

DATE: JAN, 1965

CHECKED BY:

DRAWING No 65-7